CHICAGO SECTION OF THE AMERICAN MATHEMATICAL SOCIETY.

THE eighth regular meeting of this Section was held at the University of Chicago on Thursday and Friday, December 27 and 28, 1900. The Section was organized in April, 1897, under a by-law of the Society which provides for conducting in any locality periodic meetings for the reading and discussion of mathematical papers, and since then has met twice a year, in April and December. During this period a total of 128 papers, by fifty-two different persons, have been read before the Section.

The election of officers, which occurs regularly at the Christmas meeting, resulted in the re-appointment of the Secretary, Professor Thomas F. Holgate, and the choice of Professor E. J. Townsend and Professor James B. Shaw for members of the Program Committee.

The following papers were read:

1. PROFESSOR E. H. MOORE: 'On the uniformity of continuity.'

2. PROFESSOR ARTHUR S. HATHAWAY: 'Quaternions and four-fold space.'

3. PROFESSOR IRVING STRINGHAM: 'On the geometry of planes in a parabolic space of four dimensions.'

4. DR. F. H. SAFFORD: 'Flow of heat in two dimensions.'

5. MR. A. C. LUNN: 'Certain mathematical aspects of experimental science.'

6. MR. E. A. HOOK: 'Some properties of circulating decimals.'

7. PROFESSOR ARNOLD EMCH: 'Note on the congruences of twisted curves.'

8. PROFESSOR H. B. NEWSON: 'A generalization of the Wessel-Gauss-Argand diagram.'

9. DR. F. R. MOULTON: 'On straight line solutions of the problem of n bodies.'

10. DR. GILBERT A. BLISS: 'Geodesic lines on an anchor ring.'

11. MR. FRANZ A. LA MOTTE: 'On the determination of the algebraic equations invariant under Tschirnhausen transformations, with the parameter representation of all such irreducible equations, with rational coefficients, of the third and fourth degrees.'

12. PROFESSOR E. J. TOWNSEND: 'Functions of two real variables which are continuous with respect to each variable.'

13. PROFESSOR L. E. DICKSON: 'The group of the equation for the twenty-seven lines on a general cubic surface.'

14. PROFESSOR OSKAR BOLZA: 'Concerning the expression of Abelian integrals in terms of a fundamental set of integral functions.'

15. DR. J. C. FIELDS: 'Proof of the Riemann-Roch theorem and of the independence of the conditions for adjointness.'

16. PROFESSOR OSCAR SCHMIEDEL: 'Two reduction formulas applicable to certain particular integrals.'

17. PROFESSOR E. B. SKINNER: Some forms which remain invariant with respect to certain ternary monomial substitution groups.'

18. PROFESSOR JAMES B. SHAW: Note indicating a new development of a determinant.'

19. PROFESSOR E. H. MOORE: 'On double limits.'

20. PROFESSOR E. H. MOORE: 'Concerning the fundamental propositions of the theory of proper definite integrals.'

21. MISS IDA M. SCHOTTENFELS: 'Proof of the existence of a particular substitution group of degree 21 and order 20160.'

In addition to the above Professor Hathaway presented a paper introducing a general discussion on the subject 'Pure Mathematics for Engineering Students.'

THOMAS F. HOLGATE,
Secretary of the Section.
EVANSTON, ILLINOIS.

WISCONSIN ACADEMY OF SCIENCES, ARTS, AND LETTERS.

THE thirty-first annual meeting of the Academy took place at Milwaukee, December 27 and 28, 1900. The following papers were read and discussed:

'An example of a theoretical system of weight-factors, of ready application in the solution of observation equations,' by Albert S. Flint.

'Harmonic curves of three frequencies.' (Second paper.) With exhibition of stereograms drawn by E. A. Hook, by Charles S. Slichter.

'On repeating decimals,' by E. A. Hook.

'On an improved method of determining latent heat of vaporization,' by Louis Kahlenberg.

'A campaign cry of 1844,' by H. J. Desmond.

'Early political platforms in Wisconsin,' by John G. Gregory.

'Personal names, their etymology,' by James D. Butler.

'Shakespeare's knowledge of criminal psychology,' by Frank C. Sharp.

'Determinism, decrees and immutable law,' by Charles C. Caverno.

'Some recent observations on the migration of birds,' by H. A. Winkenwerder.

'The plankton of Green Lake and Lake Winnebago,' by C. Dwight Marsh.

'The cause of cleavage in rocks,' by C. K. Leith.

'The supposed lessening of geyser activity in the Yellowstone National Park,' by D. P. Nicholson.

'The orientation of stream channels as related to geological structure,' by William H. Hobbs.

'The old tungsten mine at Trumbull, Ct.,' by William H. Hobbs.

'The future of the clay and cement industry in Wisconsin,' by Ernest R. Buckley, Associate Director of the State Geological Survey.

The following papers were read by title:

'On the thermal conductivity of common woods,' by L. W. Austin and C. W. Eastman.

'The expansion of wood due to the absorption of water,' by L. W. Austin, G. S. Cassels and W. H. Barber.

FRANK CHAPMAN SHARP,
Secretary.

SCIENTIFIC BOOKS.

Foundations of Knowledge. By ALEXANDER THOMAS ORMOND, McCosh Professor of Philosophy in Princeton University. New York, The Macmillan Co. 1900. 8vo. Pp. xxvii + 528. Price, $3.00.

Without mincing words, it may be affirmed at once that Ormond's work is a very considerable performance. Not only this. Symptomatic books on philosophy have been none too many these last twenty-five years, and the volume before us betrays many symptoms of interest in relation to matters fundamental. Accordingly, even if it be 'meant as a first rather than a final word on the topics with which it deals' (Preface, xxv), it cannot escape the sharp analysis that all primary achievements deserve and, indeed, demand. Further, the 'General Introduction' betrays so excellent a sense of the recent historical situation, especially in British-American thought, that the things Ormond has left unsaid throw no little light on those to which he has committed himself. As the book is a first word, and largely epistemological at that, in view of favors to come, I should like to express the hope that, in Ormond's creed, things are lawful in epistemology which must be suppressed sternly in metaphysic.

The main body of the exposition has been divided into *three* 'Parts.' In the *first*, Ormond deals with 'Ground-Concepts of Knowledge.' What he attempts here might be called a clearing of the air. That is to say, centuries of discussion and of common usage have caused many hoary associations to cluster round certain terms. Every one is aware what the words, 'Experience, Knowledge, Reality,' mean; yet, equally, no one is aware. Otherwise, these counters cover so much that few stop to deploy their implications, and the interpretation alters with the ear that hears. Personal tendencies, customary environment of intellectual habit and the like, vary from man to man, from community to community. The 'experience meeting' of the pietist, the 'experience' demanded by electors to a vacant office, 'experience' with Mr. Spencer, and 'experience' as the latter-day idealist thinks of it, are by no means the same affair. Accordingly, with true instinct, Ormond proceeds, first, to state his view of the general implications of 'Experience, Knowledge, Reality,' and a very sensible, non-partisan view it is. "We may define experience as the sum of these personal activities by means of which a conscious self reacts upon its object or not-self, and translates it into realized content, these activities being inclusive of thought, feeling and will; or, objectively—the system in which these activities are included" (50). "The notion of reality includes a synthesis of being and manifestation" (64). "The method of knowledge, as we have conceived it, is an embodiment of the inner dialectical process by which the content of experience is reduced to the content of knowledge" (104). Such are the essential statements.

The *second* Part reviews the 'gradual development of the knowing processes,' and is entitled, 'Evolution of the Categories of Knowledge.' At this point, even if one have not noted its presence previously, the modern outlook of the work becomes abundantly apparent. To be specific, the contemporary de-